

Special Session **SS_05**

Advanced composite materials for high-end engineering applications

Brief description of the specific scientific scope of the Special Session:

This special session of MANUFACTURING 2022 invites conference contribution related to the scientific area of advanced composite materials for high-end engineering applications. Composite materials play a significant role in the development of modern science and technology. They have a broad and proven application in various engineering fields including aerospace, architecture, automotive, energy, military, sports, medical and biomedical, etc. However, we still face many challenges in the manufacturing and processing of composites. Price of the raw materials, complex manufacturing process and cost, difficult process physics, complex synergistic relations with the process variables, difficult modeling process and quality control, etc. are few to mention. This special session of MANUFACTURING 2022 focuses on all aspects of current scientific and technological progress related to the manufacturing of composite materials and products. Authors are invited to contribute research work with new advances in composite materials, material processing, analysis & testing as well as its performance and applications.

List of topics of interest

1. Advanced composites, Nanocomposites, Hybrid composites, Conductive composites, Biocomposites, Multi-functional composites
2. Mechanical properties, electrical and thermal properties of composites, characterization methods of composites
3. Novel manufacturing techniques for composite materials, additive manufacturing with composites, automated manufacturing, process optimization and process monitoring
4. Defects, damage, destructive and nondestructive testing
5. Novel applications of composites
6. Mechanical and structural properties of advanced composites as well as their constituent materials
7. Experimental and theoretical studies of composites, manipulation of the properties through the manufacturing and processing
8. Modelling and simulation of composite materials
9. Nano composites, hybrid composites, biomedical composites, intelligent and autonomic composites (e.g. self-healing, self-sensing, self-reinforcing, etc.), ultra-high-performance composites, etc.
10. Sustainability in composite material processing, recyclability of composites, digital manufacturing, virtual testing, etc.

Members of the Special Session Organizing Committee:

Aminul ISLAM

Technical University of Denmark
Department of Mechanical Engineering
DENMARK
Email: mais@mek.dtu.dk

Jacek ANDRZEJEWSKI

Poznan University of Technology
Faculty of Mechanical Engineering
POLAND
Email: jacek.andrzejewski@put.poznan.pl

Programm Committee:

Júlio César Machado Viana, University of Minho, Portugal

Saeed Doagou Rad, Demant A/S, Denmark

Venkata Karthik Nadimpalli, Technical University of Denmark

Adam Piasecki, Poznan University of Technology, Poland

Rehan Umer, Khalifa University, UAE

Mateusz Barczewski, Poznan University of Technology, Poland

Katarzyna Skórczewska, University of Science and Technology in Bydgoszcz, Poland

Piotr Czyżewski, , University of Science and Technology in Bydgoszcz, Poland

Marek Wyleżoł, Silesian University of Technology, Poland

Aleksander Hejna, Gdansk University of Technology, Poland

Krzysztof Formela, Gdansk University of Technology, Poland